Radiofrequency Plasma Synthesis of Boron Nitride Nanotubes (BNNTs) (Tier 2)

Completed Technology Project (2015 - 2016)

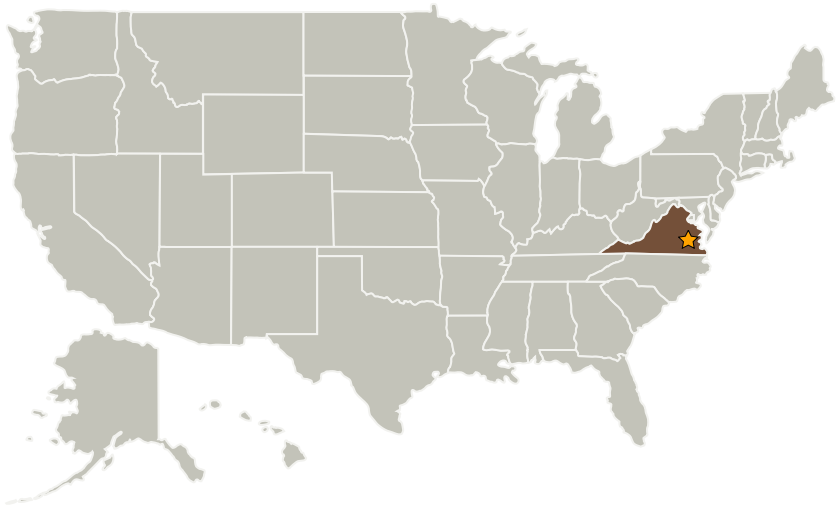
Project Introduction

The focus of this project is to establish process parameters for free-flight synthesis and/or deposition of high quality BNNTs. Novel collection methods for in situ purification, separation and alignment using the unique configuration of the facility will be explored. Development of a reliable and reproducible mass production technique will result in a steady supply of BNNTs for NASA applications.

Anticipated Benefits

The project will establish a reliable source for the high-aspect-ratio BNNTs necessary for enhancing properties of metallic hot structures and ceramic TPS. The improved performance will expand the EDL design space, culminating in reduced mass for future exploration vehicles. ARMD, HEOMD, STMD and SD can all benefit from the enhanced design space afforded by the development of such materials.

Primary U.S. Work Locations and Key Partners



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Completed Technology Project (2015 - 2016)

Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Tekna Plasma Systems, Inc.	Supporting Organization	Industry	Quebec, Outside the United States, Canada

Primary U.S. Work Locations
Virginia

Project Website:

https://www.nasa.gov/directorates/spacetech/home/index.html

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Center Innovation Fund: LaRC CIF

Project Management

Program Director:

Michael R Lapointe

Program Manager:

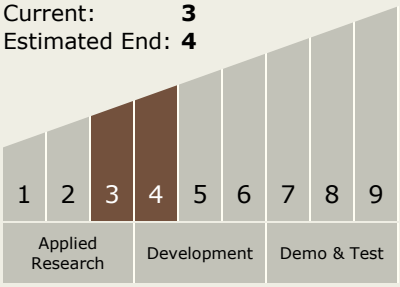
Julie A Williams-byrd

Principal Investigator:

Stephen J Hales

Technology Maturity (TRL)

Start: **3**
Current: **3**
Estimated End: **4**



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Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.3 Mechanical Systems
    - TX12.3.8 Docking and Berthing Mechanisms and Fixtures